

Laura martin: case study essay sample

[Finance](#)



DCF Valuation

1. Forecast revenue for each year for from the firm's financial data.
2. Select appropriate discount rate based on WACC
3. Discount each cashflow back to it present value
4. Obtain the terminal value through an application of terminal value multiple
5. You add these values together
6. Using this method, Martin calculates the price of Cox's share to be \$54. 29

Multiple Valuation:

1. Identify comparable firms that have growth, cashflow and risks similar to those of target firm whose value is in question.
2. Obtain the individual multiple or ratio of the firm's price to their financial data, such as EBITDA.
3. Average these multiples to obtain the industry average multiple.
4. Adjust this industry multiple and apply it to the target firm to get that firm's value.
5. Using a multiple of 20. 9, Laura Martin calculates the price of Cox's share to be \$50. 00

Advantage of multiple

- With multiple, there's no need to go through the process of forecasting future revenue with great uncertainty. It simply relies on current financial statement of comparable firms to obtain the industry average multiple.
- This process is simple to understand and easy to apply. As a result, the information is also cheap to obtain compared to the high cost of research and calculation required for DCF analysis.
- By basing valuation upon data of comparable firms, it reflects the current mood of the market and obtain a

relative value. • Good for private firm when data are not readily available and prevalent measure among particular industries such as cable industry.

Disadvantage of multiple

• According to Martin, Multiple simply doesn't ask the right questions. • In particular, the EBITDA figure inflates the earning of the firm, as it ignores "all the bad stuff" in its abbreviation. Furthermore, it is a pro forma figure which is very vulnerable to accounting manipulation. • It goes through a basic arithmetic process of averaging. When this is done in a context with very few comparable firms, the valuation may include substantial errors. Also, comparable firms are often chosen from the same industry, as opposed to choosing firms with the same growth, risk and revenue. As we will see later, this can be quite problematic. • The adjusting process applied to industry average multiple is subjective and non uniform. It differs from analyst to analyst and can be quite arbitrary. • It relies on historical and current data to obtain industry multiple. In that sense, it is backward looking rather than forward looking, and reflects only the relative value as opposed to the fundamental or intrinsic value of a firm.

Advantage of DCF:

• According to Laura, DCF valuation simply asks the right questions. • DCF valuation obtains the closest thing to intrinsic stock value, through fundamental analysis of financial data. In this respect, DCF holds significant advantage over Multiple analysis. • For instance, it factors in the time value of money, which is critical in financial analysis. It is also forward looking as opposed to backward looking. • Furthermore, compared to multiples. It is not as vulnerable to accounting conventions and manipulation • Finally, it

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relies on specific data from the firm to obtain specific value for the firm, without relying on arbitrary industry average.

Disadvantage

- However, with DCF valuation, the biggest disadvantage is that you have to forecast future revenue, which is often surrounded by great deal of uncertainty. As a result, forecasted cashflow are often inaccurate.
- Its difficult to calculate and very difficult to calculate for private firms.
- Undervalue asset that produces little or no cashflow.

- WACC is non constant in reality but its assumed to be constant here.

So the trade off is between the simplicity and market oriented nature of multiple analysis against the fundamental and firm specific nature of DCF analysis.

Questions 2 Consider the Multiple analysis developed in Exhibits 2, 5 and 6.

What assumptions does this analysis rely on?

Overview of Exhibits 2 and 6

- Exhibit 2 shows the financial summary for selected comparable companies. In particular, it shows the first few steps of multiple analysis, the calculation of industry average multiple using comparable firms.
- Exhibit 6 shows the target share price, EBIDTA value and various other equity data for Cox. In particular it shows the last few steps of multiple analysis, namely the application of industry average multiple to Cox, in order to arrive at its target price of \$50. 00
- When combined, the exhibit 2 and 5 demonstrates the complete process of traditional multiple analysis via EBITDA.

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Assumptions:

- This traditional analysis is based upon many assumptions.
- For instance, Exhibit 2 shows Selection of firms based on industry. It assumes that these firms have the same growth, risk and return as the target firm. In reality, these fundamental variables differ from firm to firm even in the same industry. Reckless reliance upon this flawed assumption maybe detrimental if an industry has very few firms. The average obtained would contain a lot of errors.
- Secondly, there is the definitional assumption. Analysts assume that their definition of EBIDTA is uniform with others. But in reality this is not true! In exhibit 2, Martin defined the multiple to be Implied Cable value + Non Cable Consolidated Assets/adjusted EBIDTA. A different definition may be used in another industry. This inconsistency in definition may open multiple analysis to manipulation by analysts to fit their particular figures.
- There is also an assumption that comparable firms calculate their EBIDTA with the same timing. In reality, this might not be the case.

Cox communication might start their fiscal year at a different time to Adelphia communication. The EBIDTA value might reflect different seasonal demands at different times of the year. But since they are assumed to be the same, it once again exposes EBIDTA value to errors.

- The fundamental assumption here is the reliance on EBIDTA as a multiple as opposed to other multiples such as price to earning ratio. EBIDTA as we all know stands for Earning before interest, depreciation, tax and amortization. It tracks the trend of profitability independent of the company's capital structure and tax position. So in effect, what Ebitda does is it ignores all the " bad stuff".
- Reliance on this figure may cause fundamental flaw to the value achieved as

significant factors are ignored. For instance it ignores the necessity of spending to replace the depreciating equipment. It assumes that companies would finance 100% of their capital expenditure externally. so are debt servicing and other fixed charges required to maintain productive capacity.

Exhibit 5 and its assumptions:

- Shows regression of ROIC and the ratio of enterprise value to average invested capital.
- It involves the use of a different multiple to obtain the implied enterprise value.
- Basic assumption is that there is a linear relationship between the two variables.
- That is it assumes return of enterprise is linearly related to the firm's value.
- It in effect assumes that value of firm reflects its fundamental data .
- This is often not the case. In reality, a firm with high return but bad management or bad public perception will result in low value.

3. How is Martin's regression analysis different from/similar to traditional multiples analysis?

The traditional multiples analysis utilized a more arithmetic approach. This is done through the averaging of comparable firm's multiples. The differences between the regression analysis and traditional multiple analysis are that in a traditional multiples analysis we start off with an average multiple being calculated and from that we multiply to the target firm's forecasted EBITDA.

In contrast, for regression we rely on a regression line produced from a scattering of comparable firms on the ROIC vs adjusted enterprise value/average invested capital graph. ROIC is returns on invested capital and is calculated by dividing net operating profit after taxes by the average

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invested capital for the period. Invested capital is the sum of fixed assets and net working capital. Using regression we start with allocating a target multiple by aligning the ROIC to the regression line. From the target multiple we adjust for the factors given (see Q4) to arrive at an implied equity value. Dividing this by the shares outstanding we arrive at a target price. (See Q4)

However the ultimate difference with regression is that we are relying on the value of r squared which is a quintessential factor affecting the accuracy of the results and the appropriateness in using the regression analysis. Under this approach we require a high correlation, which is given by a high r squared. So the upside to this approach may easily be flawed and in turn we may have to turn to other methods such as the traditional multiples analysis for better results.

The similarities are quite basic and straightforward. Both approaches rely on comparable firms and ultimately an analysis using this multiples concept is the basis of how they work.

4. Discuss her interpretation of the regression results.

Martin's regression shows the relationship between ROIC and the valuation of cable and entertainment companies as defined by the ratio of enterprise value to average invested capital. From a different viewpoint it determines the statistical relationship between these variables of interest.

The regression line was used to estimate the target enterprise value to average invested capital multiple, where enterprise value was calculated by

summing the market capitalization (share price times no. outstanding shares = what its worth) of the equity with book value of debt.

Martin projected that Cox would improve its ROIC by 0.8% from the 4% on the graph. Aligning it to the regression line she arrived at a target multiple of 1.594. From this she multiplied this to the average invested capital of \$12,136 to arrive at an implied enterprise value of \$19,345.

It is then adjusted non-consolidated assets of plus \$12,292, other assets of plus \$400, cash and proceeds of \$23, and debt less (\$3,800). This gives an implied equity value of \$28,260. Dividing this by the shares outstanding (millions) of 565.2 we get a target price of \$50.

The regression is a line of best fit and here there is a high correlation of 70% between valuation and returns on invested capital. This implies that ROICs are predictive of value[1]. 100% described a perfect correlation whereas 0%, as the other extreme, describes total random and uncorrelated relationship between the variables. Here the linear relationship between ROIC and the multiple demonstrated how you can rely on one ROIC to get the corresponding valuation of the multiple and then use that multiple to multiply by the target's earnings or EBITDA to calculate the value of the unknown target firm's value.

So through this process we can avoid the need to average the multiples or ratios of comparable companies in an industry, as needed in traditional multiples analysis, whereas here it is more of a fundamental analysis and more accurate since R squared is high. R squared is how much deviation from average is explained by the variables. So 70% of the results are

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explained by the variable. Furthermore, according to another report produced by Credit Suisse, 'there is a near zero probability that the regression results are a fluke.' [2] Traditional multiples used more of an arithmetic aspect whereas in regression we have a statistical analysis.

5. Consider the DCF analysis presented in Exhibit 7. How realistic are the assumptions? Include in your discussion the reasonableness of Martin EBITDA forecasts, assumptions about asset intensity and plausibility of terminal value multiple.

| Assumption | Reality |

| Single WACC of 9.3% | In DCF analysis the NPV is calculated as the present value of the future net free cash flows (revenue) | | less the present value of the costs (expense). Usually they are both discounted at the companies WACC. | | This is a flawed assumption and an assumption also made by Laura martin in reality the free cash flows | | depend on the on market demand, market prices and other external market factors and the market only | | compensates the firm for taking on markets risks. While costs depend on internal private risks meaning | | that the costs should be discounted at a different rate (Usually at a rate slightly higher than the risk | | free rate). Discounting the costs and cash flows at the same rate will reduce the costs significantly, | | hence overvaluing the firm. | | In calculating WACC Laura Martin used a beta | The problem with beta is that it is a sensitivity factor measuring co-movements of a firm's equity prices | | of 1.07 to forecast 10 years of cash flows | with respect to the market.

The problem is that equity prices change every few minutes depending on the time frame used for the calculation, beta might fluctuate widely. EBITDA Forecast | Forecasting cash flows in the future is often very difficult and may require econometric techniques, such as Monte Carlo simulation, and there are areas of error with each forecast compounding. I. e. forecasting depreciation and amortization, capital spending and investments. In addition, as cash flows in the future are riskier, the discount rate should reflect this, and thus use different discount rates when calculating the value of the company. 10 years is also a very long time to forecast, i. e. refer to the pie graph, which shows the change in subscription demands, so how can she accurately project into the future, although she did incorporate technological shifts, emerging industry structures and value drivers into her analysis, these are again very difficult to predict, and thus her EBITDA forecasts are reasonable to a certain extent. Asset Intensity | Asset intensity is defined as the value of assets required by a business to support \$1 in sales

Martin creates false assumption of asset intensity, as the company is being hit for 100% of the capital spending but only visible revenue streams from existing services are accounted. Terminal Value Multiple | Terminal Value Multiple Approach assumes the firm will be sold at the end of the forecast period. Firms with comparable acquisitions are used to find an appropriate range of multiples to use. Market-driven analytics result in a terminal value with a significant level of confidence that the valuation accurately depicts how the market would value the company in reality. The multiple itself is quite plausible. The problem is that there is no firm

which is comparable to COX since there is no firm valuing the | | | stealth tier. | | | The terminal value found by the terminal multiple which still needs to be discounted by problematic WACC | | | as discussed earlier. |

6. Why is Martin Pushing real options valuation as an alternative to DCF analysis? Although Laura Martin feels that DCF asked better questions in comparison to Multiple valuation method, she still perceived major shortcomings of this model. For starters, Martin feels that DCF does not incorporate potential intrinsic value that can be derived from the unused bandwidth capacity.

When the cable companies upgraded their cable infrastructure to have 750MHZ of bandwidth capacity, over 102 MHZ were left unused. These seventeen 6MHZ channel was the so called Stealth tier. Despite them being currently unused, they can potentially be used for video streaming, interactive games, local intranet.

A DCF analysis values these Stealth Tier as Zero, because it does not take into account the potential values these Stealth Tier generate. Furthermore, as discussed previously, this creates false assumption of asset intensity, as the company is being hit for 100% of the capital spending but only visible revenue streams from existing services are accounted.

For Martin, the contingent nature of the investment decision and the uncertainty surrounding potential cash flow creates the perfect context for the use of real options analysis. Just like a financial option, the real option gave each upgraded cable company the right, but not the obligation to obtain revenues from the stealth tier, depending on market conditions. In <https://assignbuster.com/laura-martin-case-study-essay-sample/>

fact, the value of the stealth tier ranges from a minimum of 13 to a maximum of 169. (This value was based upon research carried out by Credit Suisse on other firms that have used these stealth tiers.) Martin believes that an appropriate application of the Black Scholes model will enable her to calculate the intrinsic value of the stealth tier.

An analogy of a DCF analysis is like playing a game of Roulette. Once you roll the wheel, your decision is made and you can only wait for the outcome. In contrast, real option analysis is like a game of poker, there is waiting time to employ further strategies as each card is dealt. It allows great flexibility.

Therefore real options analysis gives more flexibility and allows you to capture the intrinsic value. This in fact captures the business reality as it takes into account managerial flexibility and the dynamic business environment. Her reasoning for pushing the real option analysis as method of valuation is therefore very justifiable.

7. In what ways might the ‘stealth tier’ be incorporated into the DCF and multiples analysis? How can the Stealth Tier be incorporated into the DCF analysis? This un-used cable capacity could be incorporated into the Discount Cash Flow Analysis, by deriving the potential cash flows that could be achieved from the stealth tier. A report produced by Credit Suisse First Boston, valued the un-used capacity to range between \$13 and \$169 per home passed. Using a decision tree approach, and taking \$13 per home passed to equal the Low Value, with a probability of 25% occurrence[3], and similarly Median and High Value of \$80 and \$169 per home passed, 50% and 25% respectively. Using the Discount Cash Flow Method, and by applying the

appropriate probabilities, you will arrive at an expected value which you will then discount back to time zero.

When incorporating the ‘stealth tier’ into the DCF analysis, it is quite subjective in determining the probability, and relies heavily on estimation of projected cash flows. Similarly, this relates to the analogy of DCF method being much like a game of Roulette, where by once you have made your choice you are inflexible to change.

How can the ‘stealth tier’ be incorporated into a multiples analysis? We have found two ways this can be done:

1. Is to assume that the comparable companies have a stealth tier, then all the values would have increased, or similarly find firms that have incorporated a stealth tier into their valuation. This would be an unrealistic assumption as there may not be any companies available for comparison which meets these characteristics, and thus is flawed.
2. If we can value the stealth tier, via a real options analysis, then calculate the relevant cash flows, growth and risk that would ensue and find companies which match these characteristics it is possible to incorporate the ‘stealth tier’ into a multiples analysis. But in this method, this used Real Options Analysis, which is the preferred method to value the stealth tier and is independent and so it would be redundant to incorporate it into the multiples analysis.

8. In what ways is the stealth tier like a call option? Discuss the applicability of the options analysis. What is a Call Option?

A call option provides the holder the right to buy within a specified date (if it is an American Option) at a specified price (the Exercise Price). A holder of a

long call option will exercise his right, when the share price is above the exercise price in order to make a profit.

How is the Stealth Tier like a Call Option?

The stealth tier is like a call option because it provides the right to use it but not the obligation for existing users of the cable bandwidth. If the value of the bandwidth exceeds the cost of the portion of the stealth tier, then they will light up and use their band width and use it for new technology. But if the cost exceeds it, then they will not use it, which is similar to letting the option expire and thus the holder of the option would have just incurred the cost of the option, i. e. the premium price.

The Applicability of the Options Analysis:

Within the Black and Scholes Model there are 5 variable components. This is the model Laura Martin uses to value the ‘ Stealth Tier’. The variable components are the stock price, exercise price, the option period, the variance and the risk free rate. Analysing Martin’s decision for each variable component:

| | Applicable or Not? And Why? | | The Current Stock Price, Martin used the present value of each channel of the stealth tier, | Yes. Using current market value, and | | using the current market value per home passed for a typical cable company \$2 500 and divided | discounting back using an appropriate rate. | | by 108 lit channel, to get a current value of \$23. 15. | | | The Strike Price of the option, Martin calculated the cost to light up one of the 17 channels | Yes. Going through certain assumptions, seem| | on the stealth tier, which was found to be quite minimal, close to zero in fact. She then |

intuitive to use this as the strike price, as I looked at the cost of turning the channels off to be the strike price, but this was a cost it is the cost that is being incurred by not being difficult to estimate.

Martin then considered the opportunity cost of not lighting up the cable using the cable. So if the value exceeds the cable fibre today, to reflect the Strike price of the option. This cost, then they will use the cable. The Volatility was derived from a traded at the money call option on the Cox stock, which was Yes. As if there is an active market, assume implied to be 50% per year. market efficient, priced appropriately. The Option Period, was decided to equate to the life of the cable plant, 10 years. Yes. As the cable plant has a life only of 10 years, so time to expiration. Once the plant is non-existent, so too the stealth tier. The Interest Rate, was based on U. S. Treasury securities, for a 10 year term the interest rates were 5.359%. (Exhibit 9) government bonds.

These figures were entered into the black scholes model, arriving at an option price of \$22.45. Martin, then multiplied this by the 17 free channels that make up the stealth tier to arrive at \$381.65, then subtracted the costs of \$40, which resulted in the net value of stealth tier to be \$341.65, which was an additional 14% premium to the current market valuation per home passed.[4] I think Martin's price of the option is reasonable and valid, under the black scholes model, and although the price of the whole should be worth more than the sum of the individual parts, Martin remained conservative in her valuation.

Question 9 Would you purchase Cox Communications on the basis of her analysis?

In fact, the Cable Industry is going through rapid and tremendous change. From exhibit 8, we can notice a significant structural change from predominantly analog video based subscribers to a much more diversified consumer base. An application of DCF valuation five years ago certainly would not have captured this change. An application of Multiple analysis would completely miss this change on its radar. Laura Martin's introduction of this innovative Real Option Valuation method certainly unearths the Stealth Tier within the cable industry. It is the key to this treasure chest, a key that will capture the tremendous value that will undoubtedly flow from interactive gaming, mp4 subscription and various other innovative changes. Just as DCF began 50 years ago with a humble beginning, but shortly after progressed to become the household valuation method, we believe Real Options will take its place as one of the most prominent valuation method.

Indeed, an application of Real Options to Cox communication will open up the eyes and mind of investors to its intrinsic value. It will certainly open up a floodgate, and will drive up market perception towards the cable industry. Therefore upon the Laura Martin's analysis that Cox Communication is currently undervalued significantly at \$37.50, we would purchase the share of Cox Communication with the expectation that the so called Stealth Tier will soon be unearthed. The fact that all three methods point towards this undervaluation alerts us to the vast potential that is present within the industry.

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[3] As above

[4] Laura Martin: Real Options and the Cable Industry, page 8